

CLAIMS:

1. A water-soluble polyether glycol polymer which comprises: a structural backbone of carbon atoms and oxygen atoms where there are at least two consecutive carbon atoms present between each oxygen atom; a moiety on the backbone of the polymer or a functionalized derivative on the polymer, that is cationic at physiological pH and permits complexation with phosphate or oxalate; and an average molecular weight from about 5,000 to about 750,000 Daltons.
2. The polymer of Claim 1 which comprises an average molecular weight from about 10,000 to about 750,000 Daltons.
3. The polymer of Claim 2 which comprises an average molecular weight from about 12,000 to about 300,000 Daltons.
4. The polymer of Claim 2 which comprises an average molecular weight from about 15,000 to about 80,000 Daltons.
5. The polymer of Claim 1 wherein the polymer has been derivatized with functional groups.
6. The polymer of Claim 5 wherein the functional groups are either directly connected to the polymer backbone or connected through C<sub>2</sub>-C<sub>6</sub> alkylene or C<sub>2</sub>-C<sub>6</sub> alky-C<sub>6</sub>-C<sub>12</sub>-aryl groups and are selected from halide, hydroxyl, sulfonate, phosphonate, nitro, amine, phosphine, carbonyl, carbamate, carboxylic and thio groups, or combinations of these groups.
7. The polymer of Claim 6 wherein the polymer is a polyepihalohydrin derivative.
8. The polymer of Claim 7 wherein the polyepihalohydrin derivative has an average molecular weight of between about 15,000 to 80,000 Daltons.
9. The polymer of Claim 7 wherein the polyepihalohydrin derivative is polyepichlorohydrin amine.
10. The polymer of Claim 9 wherein the derivative is a trimethylamine group.
11. The polymer of Claim 9 wherein the derivative is a triethyleneamine group.
12. The polymer of Claim 9 wherein the derivative is an ethylenediamine group.
13. The polymer of Claim 9 wherein the derivative is a diethylenetriamine group.
14. The polymer of Claim 9 wherein the derivative is a tetraethylenepentamine group.
15. The polymer of Claim 9 wherein the derivative is a mixture of two or more amine groups.
16. The polymer of Claim 1 wherein the solubility of the polymer is at least 0.01 gram of the polymer per 1,000 mL of water.

17. The polymer of ~~Claim 16~~ wherein the solubility of the polymer is from 1 to 10 grams of polymer per 1 mL of water.

*Sub A2 7* 18. A formulation for oral administration which comprises a polymer of ~~Claim 1~~ with a pharmaceutically-acceptable carrier.

5 19. The formulation of ~~Claim 18~~ wherein the polymer is a polyepihalohydrin derivative.

*Sub A3 7* 20. A method for the reduction of phosphonate or oxalate *in vivo* in an animal which comprises administering an effective amount of a formulation of ~~Claim 18~~.

21. The method of ~~Claim 20~~ wherein the formulation is of ~~Claim 19~~.

10 *Sub A4 7* 22. The method of ~~Claim 21~~ wherein the effective amount for reduction of phosphonate is from about 1 to about 15 grams per meal.

15 23. The method of ~~Claim 21~~ wherein the effective amount for reduction of oxalate is from 0.6 to about 5 grams per meal.

*Sub A5 7* 24. A use of a polymer of ~~Claim 1~~ as an agent for the reduction of phosphonate or oxalate *in vivo* in an animal.

25. A process for preparing the polymer of ~~Claim 1~~ which comprises reacting an epihalohydrin, in the presence of a Lewis acid of moderate strength, in a solvent that will not act as a chain terminator.

26. The process of ~~Claim 25~~ wherein the solvent is dichloromethane.

20 *Sub A6 7* 27. A process for preparing the polymer of ~~Claim 1~~ which comprises reacting a 3,4-dichloro-1,2-butane oxirane, in the presence of a Lewis acid of moderate strength, in a solvent that will not act as a chain terminator.

28. The process for preparing a polymer as defined in ~~Claim 1~~ wherein a catalyst is present selected from triethyloxonium hexafluorophosphate, fluoboric acid, triethyl aluminum, and 1,2-ethyl di(trifluoromethanesulfonate).